cal teaching of the Sorbonne since 1808. M. Chautemps, President of the Municipality, vindicated democracy from the imputation of indifference to culture, and claimed credit for the body represented by him for having founded a Chair of French Revolution History and a Chair of Evolution. M. Fallières, Minister of Education, dwelt on the efforts and sacrifices of the Republic for the diffusion of culture. He referred to the moribund condition of the Universities on the eve of the Revolution, and the want of cohesion between the colleges afterwards established, and eulogized the individuality now developed by the provincial Universities.

NOTES.

AT the annual graduation ceremony at the close of the summer session of the University of Edinburgh, last week, Prof. T. R. Fraser intimated that the important Cameron Prize in Therapeutics, the recipient of which might be selected from any country, had been awarded to M. Pasteur, a Doctor of Laws of Edinburgh University, in recognition of the high importance and great value in practical therapeutics of the treatment of hydrophobia discovered by him.

THE fifty-seventh annual meeting of the British Medical Association will begin at Leeds on Tuesday, the 13th inst., and go on until the 16th, under the presidency of Mr. C. G. Wheelhouse. The President's address will be delivered on the evening of the 13th. On the 14th, an address in medicine will be given by Dr. Hughlings Jackson, F.R.S., and afterwards the Stewart Prize will be presented to Dr. Klein, F.R.S., for his work in bacteriology and scarlet fever. On the 15th, an address in surgery will be given by Dr. Pridgin Teal, F.R.S., and on the 16th, Sir James Crichton Browne, F.R.S., will deliver an address in psychology.

AT the Academy of Medicine, Paris, in the grand amphitheatre, a numerous and distinguished audience gathered on Sunday for the first sitting of the International Congress of Hygiene. The chair was taken by Prof. Brouardel, with Dr. Chautemps, President of the Paris Municipal Council, and Sir Douglas Galton as Vice-Presidents. Sir Douglas Galton returned thanks on behalf of the various English Sanitary Societies, represented at the Congress by ten English delegates. He promised a hearty welcome to the French hygienists, who, he hoped, would in great numbers attend the next International Congress, to be held, as arranged, in London in 1891. The work of the Congress began in earnest on Monday, and among the subjects discussed was a proposition submitted by Dr. Jablowski, the Russian delegate, to the effect that children suffering from tuberculosis of the lungs, or even only suspected to have this complaint, should be sent back from school to their families. This proposal was rejected, but it was considered that the school doctor should exclude such pupils as by the dangerous character of their expectorations might spread the specific germ of pulmonary consumption. On Tuesday there was a discussion on the inspection of unwholesome dwellings; and in connection with "the dust-bin grievance" the Congress unanimously passed a resolution that kitchen refuse should never be kept in the house over night, that it should be placed outside in metallic boxes, and that it should be removed every twenty-four hours.

IN his interesting speech on the Education Estimates on Monday, Sir W. Hart Dyke had much to say about the new Code, the enforcing of which he has been obliged to postpone. He showed that it would "open and widen the curriculum," and referred especially to the advantages it would confer on small schools in the midst of a scattered agricultural population. The mass of our agricultural schools in England and Wales did nothing but just pass their scholars through the elementary subjects. Both sides of the House regarded that as a most deplorable thing. Questions had been put to him from time to time as to teaching agriculture in the rural schools. Knowing something of rural school life, he should do nothing so absurd as to attempt to turn out first-rate agriculturists from our elementary schools. But there was a vast difference between that and turning children out knowing nothing of plants or botany or of insect life, and what was useful and what was injurious to agriculture. A vast deal of good might be done by training in regard to these matters. What they proposed to do was to provide that any scholar might attend elementary science classes at district centres. At present, in towns as well as in agricultural districts, more combination was required between schools to enable them to carry out different kinds of teaching. What one school was unable to do, a group of three or four, with little trouble and with an economy of expenditure, might readily carry out. Sir John Lubbock and Sir Henry Roscoe expressed much regret that the new Code had been for the present withdrawn, and hoped that it would be introduced again next session.

THE committee of the national association for the promotion of technical education have issued their second annual report. They think they may fairly congratulate the members on the progress made by the movement during the past year. On May 1, 1888, an anonymous donor offered to contribute £500 to the funds of the association, provided £1000 were raised from other sources before May 1, 1889. The support received from the public has been such that the committee have secured this donation. They refer with especial satisfaction to the support received from representative bodies of working men. No fewer than thirty-one working men's Co-operative Societies have given donations or subscriptions during the year, and many more are in complete accord with the aims of the association. The committee hope that with the resources now at their disposal they may be able to extend their work, particularly in the department of secondary education, but they appeal for a larger number of annual subscriptions. Nothing has occurred to weaken their belief in the magnitude and urgency of the work which needs to be carried out to improve, develop, and harmonize, and bring into close relations one with another, the elementary, secondary, and technical education of the country.

THE establishment of a technical school at Frankfort-on-Maine for young artisans and mechanics was planned long since by different corporations in that city, and from a statement made lately by the mayor, it appears that all the expenses in connection with the school are to be borne by the city, which will also give the rooms and see to the appointment of the teachers. The lessons will be given on Sundays and in the evening on week days. The pupils will be charged a very moderate tuition fee only. Great energy is displayed in order to open this school very shortly, says the British Consul in his last Report, as the accomplishment of the scheme will be hailed with great satisfaction throughout the city.

THE death of Mr. C. Spence Bate, F.R.S., at Plymouth, is announced. He was the author of the "Report of the Crustacea Macrura dredged by H.M.S. *Challenger*, during the years 1873-76." He was also the author of the "Catalogue of the Specimens of Amphipodous Crustacea in the Collection of the British Museum"; and of a work on "The Pathology of Dental Caries." In conjunction with Mr. J. O. Westwood, Mr. Bate wrote "A History of the British Sessile-eyed Crustacea."

DURING last week Mr. John Aitken visited the Ben Nevis Observatory in connection with the proposed investigation into the number of dust particles in the atmosphere. From observations made by him and Mr. Omond, the numbers varied from 350 per cubic centimetre about noon to 500 at 3 p.m. The purest air previously examined by Mr. Aitken was on the Ayrshire coast, and gave 1260 dust particles to the cubic centimetre. It is, of course, premature to draw conclusions from these observations, but it may be suggested that extended observation will in all probability establish the fact of the singular purity of the air at this height, as compared with that at lower levels; and that the numbers of dust particles will be greatest at the Observatory in that part of the day when the ascending currents up the heated sides of the mountain are strongest.

REFERENCE was made in our last issue (p. 326) to the drought on the top of Ben Nevis in June last. In that month the hours of sunshine registered by the sunshine recorder were 250, a number considerably in excess of any previous month, the highest having been 206 hours in June 1887. With the early disappearance of the snow and strong sunshine of June, such vegetation as is found at these heights is well forward. On July 22, fine specimens of *Silene maritima*, about 8 inches in height, well grown, with abundant flowers, many of them in seed well matured, were gathered on Cairn Dearg, one of the lower heights of the mountain, at a height of 3800 feet above the sea. In Hooker's "Flora of the British Islands," the limiting height of this plant is given at 3000 feet.

THE Report of the Director of the Hong Kong Observatory, for 1888, has been issued. It is an interesting and exhaustive document. In reference to thunderstorms in the colony during the past five years, Dr. Doberck states that they are most frequent in May, and that they have not occurred in November, December, and January. They seldom happen in February. With reference to the daily variation, they are more frequent at night than during the day-time in the proportion of three to two. They appear to be most abundant about 1 a.m., and least so about 8 a.m., in the proportion of about two to one. During the past year the temperature was on an average higher than in previous years, and rose higher than before on hot days. This appears to have been at least partly due to a more southerly direction of the wind, but the temperature has been rising on the whole since 1884. Whether this is periodical remains to be investigated. The Director thinks there are fair prospects of finding it is so. The past year was more damp than usual, the rainfall was heavy, and the mean barometer below the average. The amount of sunshine was less, and the cloudiness greater than usual. It is generally considered to have been an unhealthy year.

Science says that in 1887–88 the courses in astronomy at the Johns Hopkins University were so extended as to justify its being chosen as a principal subject by candidates for the degree of Doctor of Philosophy. A small observatory has been erected, and is fitted up with a meridian circle by Fauth and Co., a portable transit instrument by Troughton, a clock, a chronograph, and other subsidiary apparatus. In the dome of the physical laboratory is mounted an equatorial of 9½ inches aperture, so fitted that the student can learn to make the usual determinations with the largest instruments of that class. The work in astronomy consists of a study of the history and practice of the subject, supplemented by instruction in the use of the instruments, and exercises in astronomical computation. During the year 1889–90 the courses are intended to cover a wider range of individual subjects than usual.

THE Royal Society of New South Wales offers its medal and a money prize for the best communication (provided it be of sufficient merit) containing the results of original research or observation upon each of the following subjects. To be sent in not later than May 1, 1890:—The influence of the Australian climate (general and local) in the development and modification of disease—the Society's Medal and £25; on the silver ore deposits of New South Wales—the Society's Medal and £25; on the occurrence of precious stones in New South Wales, with a description of the deposits in which they are found—the Society's Medal and £25. To be sent in not later than May 1, 1891:—The meteorology of Australia, New Zealand, and Tasmania—the Society's Medal and £25; anatomy and life-history of the Echidna and Platypus—the Society's Medal and £25; the microscopic structure of Australian rocks—the Society's Medal and £25. The competition is in no way confined to members of the Society, nor to residents in Australia, but is open to all without any restriction whatever, excepting that a prize will not be awarded to a member of the Council for the time being; neither will an award be made for a mere compilation, however meritorious in its way. The communication, to be successful, must be either wholly or in part the result of original observation or research on the part of the contributor.

AT a recent meeting of the Genevan Society of Physics and Natural History, M. Mallet exhibited two balls of almost perfect sphericity, about 4 inches in diameter, one black, and of vegetable origin, the other white, and of mineral origin, but both produced by a mechanical movement. The black ball had been found with another in a piece of oak which had long served as the shaft of a mill-wheel. A cavity having formed in the wood, through disease or the work of some insect, the dust of the wood, with acquired moisture, had been rolled into this spherical form, growing in size, like a snowball (a slow process of many years probably, as the wheel was very old). The white ball, a calcareous pebble, was found with many others in a grotto traversed by a torrent which flowed into the Rhone.

FOUR years ago a light-ship was stationed in the Baltic, between the Islands of Bornholm and Rügen, and the currents there have been measured on 294 days in a year, every two hours, with interesting results (described by Herr Dinklage in the *Annalen der Hydrographie*). It is found that the currents vary most irregularly in direction, strength, and duration, but in most cases follow the prevailing winds (of which the westerly are the most frequent). Currents which did not diverge more than 90° from the wind's direction being counted as similar in direction, 86 per cent. were of this nature. The relation becomes more pronounced when only winds and currents above a certain limit of force are considered. A sudden change in direction of wind is soon followed by a change in that of current. The effect of wind direction on current direction is certainly apparent the first day, and to a depth of at least 5 metres. The direction of current rarely coincides exactly with that of wind, and divergence to the right is distinctly more frequent than divergence to the left. As this cannot be attributed to the form of neighbouring coasts or to the circulation of winds (for winds in our latitudes turn mostly the other way), the author regards the effect as due to the rotation of the earth.

THE Northern Lighthouse Board have adopted Priestman's oil engines for blowing fog signals in preference to steam or gas engines. A great saving is thus effected in first cost, no chimney being required as in the case of a steam engine, nor gas works, which would be needful if a gas engine were adopted.

THE first part of the Journal of the College of Science of the Imperial University of Japan, which has just been published, contains two papers illustrated by numerous excellent plates. The first is by Prof. Matsujiro Yokoyama, on the subject of "Jurassic Plants from Kaga, Hida, and Echizen," three provinces on the west coast of Japan. It is a valuable contribution to our knowledge of the fossil flora of Japan, a subject hitherto little investigated. Prof. Yokoyama's specimens were collected, for the most part, by the Geological Survey of Japan.

His descriptions and classification show a thorough acquaintance with the subject. The conclusion he arrives at is that the "Jurassic flora of Kaga, Hida, and Echizen belongs to the same geological horizon as the flora of Siberia, Spitzbergen, and Yorkshire—namely, to the Bathonian stage of the Inferior Oolite with special relations to the flora of Siberia." The second paper is by Prof. Yasushi Kikuchi, on "Pyroxenic Components in certain Volcanic Rocks from the Bonin Islands."

IN his Annual Report on Education in Hong Kong, Dr. Eitel, the Government Inspector of Schools, says that the total number of educational institutions of all descriptions known to have been at work in the colony of Hong Kong during the year 1888 amounts to 206 schools, with a grand total of 8717 scholars. More than three-fourths of the whole number of scholars—that is to say, 6728—attended schools (99 in number) which are subject to Government supervision, and either established or aided by Government in some form or other. The remainder—viz. 107 schools, with 1989 scholars—are private institutions entirely independent of Government supervision, and receiving no aid from public funds, except that they are exempt from payment of rates and taxes.

M. TAUPIN, who was recently despatched by the Governor-General of French Indo-China to the Laos States on an exploration, has presented a report of the results, which he sums up as follows:—"I have studied the language and system of writing of the Laos—that is, of the only population in the world possessing a graphic-alphabetical system. Of this there has been up to the present no positive knowledge. It was only known that the Laotian language and writing were somewhat similar to those of Siam. The language is spoken by about four millions of people. I have collected interesting information relating to the natural history of these regions, and much commercial information. . . . I have made numerous meteorological observations, and taken a large number of anthropometrical measurements according to the Broca system."

IN the *Izvestia* of the Moscow Society of the Friends of Natural Science, vol. lxiii., there is an exhaustive work, by M. Kharuzin, on the Kirghizes. The anthropological data relative to the great Bukéeff stem are fully presented, and illustrated by sixteen photographs. The writer also describes the religious beliefs of the Kirghizes, their religious festivities and worship, and their customary law. An appendix contains the results of the excavation of thirty-six *koorgans* in the Kirghiz Steppe.

THE Governor of Jamaica, in his Report regarding the progress of the colony during the past year, says that the Department of Public Gardens and Plantations has done much useful work, and that the distribution and collection of valuable economic plants have been actively carried on. The Hope Gardens, which are intended to take the place of those at Castleton, as the head botanical station, have made good progress, but as they are young, and the authorized annual expenditure limited, some time must elapse before they will be complete. Although they are 19 miles from Kingston, they attract a large number of visitors. At the cinchona plantation actual cultivation has ceased so far as planting operations are concerned, but the establishment of a hill garden there has been attended to. No cinchona bark was shipped during the year, but bark has been supplied to the Government analytical chemist for preparation of a liquid extract of a febrifuge manufactured according to a method adopted by Mr. Hooper, Government Quinologist in the Nilgiris, and which is to be tested by the Medical Department of the colony. Attention is directed to the propagation at Castleton of the Manilla hemp plant with a view to its introduction into different parts of the island, and it is pointed out that even if the fibre is not utilized as an article of export, it may supply a local demand for rope, and so save such a valuable timber-tree as the "mahoe," of which large numbers are annually destroyed by the peasantry by being stripped of their bark, which is twisted into ropes. Another interesting circumstance alluded to is the successful experiment of grafting the mangostien (which, although growing at Castleton for many years, has only recently reached the fruiting stage) upon the gamboge tree of common growth.

THE additions to the Zoological Society's Gardens during the past week include a Macaque Monkey (*Macacus cynomolgus* ♀) from India, presented by Mr. H. J. Cunnington; a Peregrine Falcon (*Falco peregrinus*), captured at sea, presented by Captain Watson; an Indian Fruit Bat (*Pteropus medius* ♂) from India, presented by Mr. Tholen; an Ocelot (*Felis pardalis*) and a Brazilian Cariama (*Cariama cristata*) from South America, presented by Captain W. Heathorn Lacy; a Tuberculated Iguana (*Iguana tuberculata*) from Brazil, presented by Mr. H. E. Blandford; three Palm Squirrels (*Sciurus palmarum*) from India, purchased; an Indian Python (*Python molorus*) from India, deposited; and ten Gold Pheasants (*Thaumalea picta*), bred in the Gardens.

ASTRONOMICAL PHENOMENA FOR THE WEEK 1889 *AUGUST* 11-17.

(FOR the reckoning of time the civil day, commencing at Greenwich mean midnight, counting the hours on to 24, is here employed.)

At Greenwich on August 11

Sun rises, 4h. 41m.; souths, 12h. 4m. 56·3s.; daily decrease of southing, 9·7s.; sets, 19h. 28m.: right asc. on meridian, 9h. 25·5m.; decl. 15° 9′ N. Sidereal Time at Sunset, 16h. 50m.

Moon (Full on August 11, 5h.) rises, 19h. 36m.*; souths, 23h. 58m.*; sets, 4h. 28m.: right asc. on meridian, 21h. 16·5m.; decl. 18° 54′ S.

Planet.	Rises.	Souths.	Sets.	Right asc. and declination on meridian.	
	h. m.	h. m.	h. m.	h. m.	° ′
Mercury..	4 56 ...	12 22 ...	19 48 ...	9 43·2 ...	15 34 N.
Venus ...	1 3 ...	9 5 ...	17 7 ...	6 25·0 ...	21 17 N.
Mars ...	3 4 ...	11 1 ...	18 58 ...	8 21·3 ...	20 34 N.
Jupiter ...	16 39 ...	20 32 ...	0 25*...	17 54·4 ...	23 24 S.
Saturn ...	5 1 ...	12 23 ...	19 45 ...	9 43·7 ...	14 53 N.
Uranus ...	10 20 ...	15 49 ...	21 18 ...	13 10·3 ...	6 50 S.
Neptune..	23 1*..	6 51 ...	14 41 ...	4 10·9 ...	19 25 N.

* Indicates that the rising and southing are those of the preceding evening and the setting that of the following morning.

Aug.	h.	
11 ...	14 ...	Mercury in conjunction with and 0° 38′ north of Saturn.
16 ...	14 ...	Saturn in conjunction with the Sun.

Variable Stars.

Star.	R.A.	Decl.			
	h. m.	° ′		h. m.	
o Ceti (Mira) ...	2 13·7 ...	3 28 S. ...	Aug. 11,		*M*
δ Libræ	14 55·1 ...	8 5 S. ...	,, 15,	1 40	*m*
V Coronæ	15 45·6 ...	39 54 N. ...	,, 11,		*M*
U Ophiuchi... ...	17 10·9 ...	1 20 N. ...	,, 13,	1 36	*m*
		and at intervals of		20 8	
X Sagittarii... ...	17 40·6 ..	27 47 S. ...	Aug. 12,	0 0	*M*
			,, 16,	3 0	*m*
W Sagittarii ...	17 57·9 ...	29 35 S. ...	,, 11,	3 0	*M*
U Aquilæ	19 23·4 ...	7 16 S. ...	,, 15,	0 0	*m*
η Aquilæ	19 46·8 ...	0 43 N. ...	,, 15,	3 0	*M*
R Sagittæ	20 9·0 ...	16 23 N. ...	,, 16,		*m*
W Cygni	21 31·9 ...	44 53 N. ...	,, 11,		*m*
δ Cephei	22 25·1 ...	57 51 N. ...	,, 15,	2 0	*M*

M signifies maximum; *m* minimum.

Meteor-Showers.

	R.A.	Decl.	
	°	°	
The *Perseids*	44 ...	56 N. ...	Swift; streaks.
Near μ Persei	60 ...	48 N. ...	,, ,,
,, η Aurigæ	74 ...	41 N. ...	,, ,,
,, δ Draconis	290 ...	70 N. ...	Swift.